Unit 3 States of Matter Summative Practice

1. Surface tension is
    A. skin on the surface of a liquid.
    B. the tendency of the surface of liquids to decrease the area.
    C. the spontaneous mixing of two substances.
    D. the same as vapor pressure.
2. Pure liquids boil at higher temperatures under high pressures than they do under low pressures, because
    A. the molecules of liquid are closer together under higher pressures.
    B. it takes a higher temperature for the vapor pressure to equal the higher external pressure.
    C. the molecules of vapor are farther apart under higher pressures.
    D. the vapor diffuses more rapidly at higher pressures.
3. The formation of frost is an example of
    A. condensation.
    B. evaporation.
    C. deposition.
    D. melting point.
4. A graph that shows the pressure and temperature conditions under which the phases of a substance exist is called
    A. a phase diagram.
    B. a vapor pressure curve.
    C. a unit cell.
    D. the kinetic-molecular theory of matter.
5. Water boils at 100°C. Ethanol boils at 78.5°C. Which of the following statements is true?
    A. Water has the higher vapor pressure at 78.5°C.
    B. Ethanol has the higher vapor pressure at 78.5°C.
    C. Both have the same vapor pressure at 78.5°C.
    D. Vapor pressure is not related to boiling point.
6. Which of the following is not a property of typical solids?
    A. definite melting point
    B. high density
    C. easily compressible
    D. low rate of diffusion
7. The kinetic-molecular theory states that ideal gas molecules
    A. are in constant, rapid, random motion.
    B. have mass and take up space.

C. exert forces of attraction and repulsion on each other.
D. have high densities compared with liquids and solids.

Unit 3 Gases Summative Practice

1. Pressure can be measured in
    a. grams.
    b. meters.
    c. pascals.
    d. D. liters

2. A sample of oxygen gas has a volume of 150 mL when its pressure is 0.923 atm. If the pressure is increased to 0.987 atm and the temperature remains constant, what will the new volume be?
    a. 140 mL
    b. 160 mL
    c. 200 mL
    d. D. 240 mL

3. What is the pressure exerted by a 0.500 mol sample of nitrogen in a 10.0 L container at 20°C?
    a. 1.2 kPa
    b. 10 kPa
    c. 0.10 kPa
    d. 120 kPa

4. A sample of gas in a closed container at a temperature of 100.0°C and 3.0 atm is heated to 300.0°C. What is the pressure of the gas at the higher temperature?
    a. 35 atm
    b. 4.6 atm
    c. 59 atm
    d. 9.0 atm

5. An unknown gas effuses twice as fast as CH. What is the molar mass of the gas?
    a. 64 g/mol
    b. 32 g/mol
    c. 8 g/mol
    d. 4 g/mol

6. If 3 L N_2 and 3 LH_2 are mixed and react according to the equation below, how many liters of unreacted gas remain? Assume temperature and pressure remain constant.
N2(g) + 3H2(g) $\rightarrow$ 2NH3(g)

    a. 4L
    b. 3L
    c. 2 L
    d. 1 L

7. Avogadro's law states that

a. equal numbers of moles of gases at the same conditions occupy equal volumes, regardless of the identity of the gases.
b. at constant pressure, gas volume is directly proportional to absolute temperature.
c. the volume of a gas is inversely proportional to its amount in moles.
d. at constant temperature, gas volume is inversely proportional to pressure.